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Bird Day Number

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Song and White-throated Sparrows

The Songs of Birds

BY ARETAS A. SAUNDERS, NEW YORK STATE MUSEUM

To learn to know each bird that one sees is a good accomplishment. To learn to know each bird that one hears is a greater one. Probably no one can do the last perfectly, for there are always a few birds whose songs are unusual, little or not at all like the songs of the rest of their kind. Except for these few cases, however, it is quite possible to learn to know each common bird by its song as well as by its colors.

When once we know the birds in this way, we find it much easier to find them, to follow

them, to know when they arrive in migration and to know where to look for their nests. If we must see a bird to know its name we have many difficulties to overcome. The bird must be in clear view, with no branches or leaves between us and it. The light must be in the right direction. The bird must stay still, or only move enough to reveal all of its colors and markings to us. But to hear a bird clearly none of these conditions is necessary. The only conditions are that we must be near enough to hear the song clearly and that we must know the song and the name of the bird that goes with it.

Can we surely identify birds by their songs? Will we never make a mistake? The great majority of times we shall be right, but mistakes can be made. We must be careful, just as we are careful in identifying birds by eye. We should never make a record of a rare bird, or a bird at an unusual season, or in an unusual place, by hearing it only. If there is anything unusual about it, see the bird, too!

Since some birds imitate others we must not let them fool us. A woman once remarked to me how exceptionally early a certain spring season was: she had heard the wood pewee in April. I inquired if she had seen the wood pewee. She had not, but she knew its song very well. One who knows a few things about some of our imitative birds can guess that what she really did hear was the starling, which imitates the wood pewee only too well. Many of us, in this manner, may hear a "wood pewee" even in midwinter, though the real bird does not arrive until late in May.

Hence, when we are going to name birds by their songs, let us be careful. Let us be sure we know the song well, and that there are no imitators about. Even then we might make a mistake.

Once, as I walked along an Adirondack trail, I heard at intervals ahead of me the loud "whee-deah!" of an olive-sided flycatcher. As I drew nearer I also heard a red-eyed vireo singing. Then I noticed that when the flycatcher called, the vireo stopped singing, and that the two birds were very near each other. Finally I reached the spot and found a red-eyed vireo singing its long-continued, conversational song, and stopping every now and then to call in a voice twice as loud "whee-deah!" in exact imitation of the olive-sided flycatcher. Yet the red-eyed vireo has never been supposed to be an imitator.

This shows that new facts may be learned by paying special attention to bird songs. There are many such facts still not known, even about our commonest birds. Do you know how many different ways a song sparrow can sing? Do two song sparrows ever sing just alike? Are the songs of robins all alike, or is each robin song slightly different from those of all other robins? How many notes are there in a chipping sparrow's song? Can you always count the notes? Are there always the same number? How many different meadowlark songs have you heard? How many different ones can one bird sing? These are a few questions about the songs of very common birds. You may not succeed in finding all the answers but you will find out some most interesting things. Some of them are likely to be facts that no one has ever known before. What we do not know about bird songs today is greater than what we do know.

There are these two reasons, therefore, why we should know birds by their songs: We can know the birds better and find them more easily, and we can learn new things about their songs. There is a third reason. When we know bird songs we derive greater pleasure than ever from the study of birds.

What a thrill of joy comes each spring—or sometimes when it is still winter—when we hear the first song of the song sparrow! What a fine little burst of joy that song is! How full it is of the springtime soon to come! From now on we can hear that song frequently until well into the month of August. We may tire of the radio and phonograph and want to turn them off, but what bird-lover would want to turn off a song sparrow even if he could.

As the weeks of the coming of spring follow the first song of the song sparrow, one bird after another joins the chorus. The soft notes of the bluebird's warble are heard across the March fields. The gurgle of the red-winged blackbirds in the swamp, the "spring o'-the year" of the meadowlark, the carol of the robin and the long, loud call of the flicker each comes in its turn.

Have you ever noticed how, when you know a certain bird song and hear it again, it brings with it not only the picture of the bird, but the place where it lives, in all its beauty? The long lively medley of the brown thrasher pictures the glory of a hillside thicket on a spring morning. The robin's song makes us think of blossoming apple orchards. If you know the

wild song of the Louisiana water thrush, how it brings back the woodland brook, the gurgling water, the mossy stones and the bloom of trout lilies and marsh marigolds. The simple song of the black-throated green warbler is full of suggestions of deep, dark groves of hemlock trees, with the little black and gold bird darting about through the feathery sprays of green needles. And how full is the glorious song of the wood thrush of those calm, peaceful, deepening shadows of twilight coming in the woodlands.

He who does not know bird songs may have a big store of happiness ahead, if he attempts to acquire that knowledge. He who knows them possesses a never-ending source of the greatest pleasure. When he tires of city sidewalks and walls of masonry, of crowded streets and rush of automobiles, he can go again to the land of green trees and grass, shrubbery and wild flowers, and drink his fill of pleasure as he listens to the songs of his friends, the birds.

Photograph by G. A. Bailey

Lesser Red-Polls

Birds' Nests Furnish Material for Study

Collections of birds' nests, gathered after the birds have left them, are to be found among the natural history specimens that constitute miniature museums in many schools of New York State. By studying these nests, many interesting facts are learned. Since practically none of the smaller birds uses the same nest twice, this practice is harmless.

Curtis High School, Staten Island, possesses several cabinets of mounted birds, mineralogical and other specimens helpful to pupils of natural science. At the White Plains High School the biology club members have gathered a collection of outdoor objects, including birds' nests taken after the birds had abandoned them.

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Bird Censuses Help Solve Ornithological Problems

Censuses of breeding birds furnish valuable material for use in solving many problems relating to the distribution of bird life, says the Biological Survey of the United States Department of Agriculture, which administers federal laws relating to birds, and with the help of volunteer cooperators has been conducting these censuses for several years.

A census of breeding birds is an exact and complete enumeration of the birds actually nesting within the boundaries of a selected tract of land. Birds that merely visit the area are not to be counted, no matter how close to the line their nests may be situated. Censuses should be made after the migration is over, at the height of the breeding season, when the greatest number of birds have eggs or young in the nest. Usually records over at least five years are needed before an adequate idea of the bird life of a given tract can be formed.

A convenient method is to count the singing males very early in the morning, when every male bird is usually in full song near the nest site. After migration is over each singing male may safely be considered to represent a breeding pair. It is advisable to repeat the count at least once a few days later or check it by subsequent observations throughout the breeding season. A tract of from 40 to 80 acres is of suitable size for making observations. *Press service, United States Department of Agriculture*

Photograph by A. O. Gross

The rich brown plumage of the woodcock merges with the russet leaves and often renders the bird well nigh invisible

Our Singing Wood Snipe

BY EDWARD A. PREBLE, BUREAU OF BIOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF AGRICULTURE

When Henry Hudson sailed up New York's great river in 1609, his sailors, if they went ashore for water, doubtlessly started up from the alder thicket beside the spring a long-billed bird, swift of wing and peculiar in shape. This bird had crouched quietly among the brown leaves as the intruders came near, and had been invisible, so well did its rich brown plumage merge with the russet leaves. This was the woodcock, one of the most beautiful and interesting of our birds.

About the time that the earliest of the frogs, the spring peepers, begin to play their shrill pipes in our woodland ponds, the woodcock comes back from the southern swamplands where Jack Frost has sent him for the winter. As soon as the spring thaws have bared the ground and softened the soil, he returns, unannounced, for he is a bird of the night. He does not, like the bluebird, proclaim his coming by cheerful warbling from the apple tree, and yet he is a songster. And if we will visit his haunts in the clear cool twilight of a March or April evening, we may share the joy of hearing that strange wild melody that the woodcock sings for the ear of his mate.

When the sun has dropped below the horizon so far that only a dull violet glow remains, and the darkening shadows have melted into obscurity the outlines of each bushy mound, we may hear above the clamor of the frogs, each one vying for attention, a sharp rasping note that among all our wild voices comes nearest to the squeak of the nighthawk. But no nighthawk calls from the ground, and as we creep forward toward the sound, straining our eyes to catch a glimpse of the singer, the note ceases, there is a rustle of wings and the bird has vanished into the gloom.

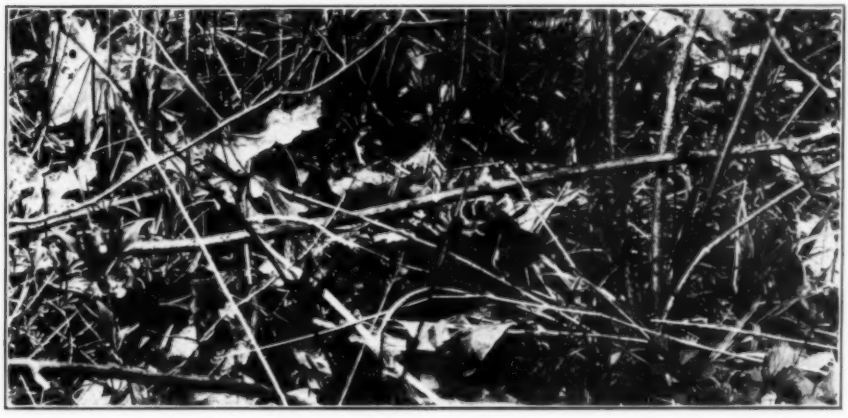
But soon, from high in the air, there comes filtering down a succession of bubbling notes

that, once heard, can never be forgotten. It comes from some creature flying rapidly in ever-narrowing circles usually beyond the range of our vision. Sometimes we may be so favored by a combination of glowing sky and an eager bird that we catch sight of the singer circling with rapid wing beats high in the sky. Those liquid notes, like drops of water changed into music, as if the gods of spring had decreed that mortals might be given a brief glimpse of things ethereal, come dropping down with a leisurely rhythm that seems of another world. Slower, nearer and louder come the chirping notes. Then there is a rush of wings, and if we have chosen well our place we may glimpse the form of the bird as he swoops swiftly to the ground. Back to earth he comes literally as well as figuratively, for as soon as he strikes the ground he begins once more to utter that strange rasping note which, we must presume, is music to the female bird for whose benefit all this strange play has been staged. If we are so favored we may sometimes see the performer, his feathers fluffed out so that he seems doubled in size, strutting like a pigmy turkey-cock with drooped wings and widespread tail in the presence of his long-billed sweetheart, and every few seconds sending forth with startling vehemence that harsh note.

A little later in April or May, if we are fortunate, we may chance on the nest of this pair. There is really no nest, the four buff and brown-spotted eggs lying in a little hollow in the dry leaves. The mother rises only when almost trodden on, and usually alights within sight and tries to lead us away. If we approach carefully we may view the sitting bird at close range and even touch her as she broods. Then we may best admire the beautiful markings that make her so nearly invisible, and note the large eye, set far back near the top of the head, that serves the bird so well.

After three weeks of incubation the young are hatched. They remain in the nest only until all are out of the shell and have dried their buffy and black down. All young birds are interesting but young woodcock are especially captivating. When running to escape they usually spread their tiny unfledged wings, evidently as balancers. The mother is very solicitous in their care and will expose herself to desperate danger in her zeal to lead an enemy away from her babies. If she has an opportunity she will carry them, one by one, to a place of safety, and is said also to move them to favorable feeding grounds in the same manner. The young are usually carried between the thighs of the mother, but some observers have seen the baby birds grasped with the toes or even carried on the mother's back.

In autumn, when the leaves have fallen, and the frost seals up the swampy bottoms where it gets its living by boring for worms with that long sensitive bill, the woodcock must leave the northern part of its range and move southward to share the coverts with its cousins



Photograph by G. A. Bailey

Can you find the woodcock on her nest? She often permits a close approach, apparently depending on her protective coloring.

which have remained there through the summer. The range of the species covers roughly the eastern half of the United States south to the gulf and extends northward into Ontario and the maritime provinces. It breeds throughout this range and does not go south of our borders even in winter. It is found nowhere else in the world, and has few close relatives.

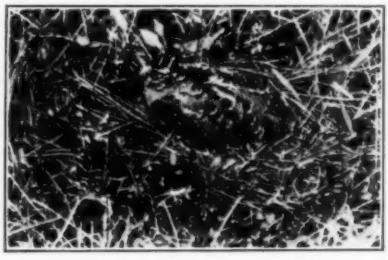
One would think that so gentle and harmless a bird, and one with so restricted a range, would be treasured and protected. But the woodcock has the fatal gift of being designated a game bird, a class considered by some as possessing no esthetic charm, but being of value only for sport. So ruthlessly has this bird been pursued that the time has come when we must decide whether we shall allow it to be destroyed, or insist that it be preserved as a part of the wild life that we trust our descendants will prize more highly than we have. The majority of careful observers, sportsmen included, agree that the woodcock is steadily becoming scarcer. It has already become rare in many of the states in the western part of its range, and in the South.

In our Northeast, though much reduced as a breeding bird, it still occurs in fair numbers during the autumnal flights. This is because until recently the comparatively inaccessible breeding coverts of northern New England and the maritime provinces have been little hunted. Now this stronghold is receiving increasing attention from the sportsman. Furthermore, throughout its southward journey the woodcock must run the gauntlet of an army of hunters.

Just as the newly invented telegraph played its part in the extermination of the passenger pigeon a few decades ago, so the automobile, and perhaps the radio, is now assisting in the destruction of many of our creatures classed as game. In the case of the woodcock, topographical conditions sometimes cause abnormal concentration in certain localities during migration, and the news being quickly spread, great slaughter of the birds results. Such a condition has led one state to enact a special law that permits an undue drain on its numbers while on its way to its winter home.

Photograph by W. C. Bowen

This young woodcock did not even resent it when touched gently with the hand. It ran away quickly, however, when released in an alder thicket.



Photograph by W. C. Bowen

The young woodcock crouches close to the ground and permits its photograph to be made at short range. This is a wild bird that allowed itself to be picked up and carried into the open for photographing.

Of the more than three hundred thousand persons who were licensed to hunt in New York State during each of the past few years, though of course not all hunted woodcock, it required on the average, 12 men to kill a woodcock in 1921, 14 in 1922, 21 in 1923 and 18 in 1924. The laws of New York permit each hunter to kill 24 woodcock each season, and some claim to "get the limit," and contend that this is proof that the bird is still abundant. In a State where there is only one woodcock killed to each 15 or 20 hunters, it must be evident that the man who kills 24 has robbed some one else. Those who do not wish the woodcock killed off are the ones who are being robbed.

Let it not be supposed that New York has lagged behind other states in the protection of this bird. The first legal protection that the woodcock received was in New York, in 1791, and in one of New York's counties, Rensselaer, the first year-long protection was given in 1900, for three years. Legal measures, however, here as elsewhere, have failed to offset the ravages that by courtesy may be grouped under what we call "civilization." Let us hope that the day is not far distant when the spec-

tacle, viewed even in imagination, of a dozen or twenty men, each with dog and gun, striving to bring to bag a single eight-ounce woodcock, will be accorded the ridicule it deserves.

If we are to preserve the woodcock so that the children now in our schools may later hear its twittering song in the cool spring twilight or start it from the crisp brown leaves beneath the alders and birches in the golden days of October, we must stay our hand. Surely this lovely bird deserves a better fate than to be exterminated to make a holiday.

Birds Feeding on Injurious Insects Act as Crop Savers

Birds in general are useful as well as beautiful. Without birds to keep the insect pests in check it would be more difficult to grow food. They also eat many weed seeds and so give a better chance for the planted seeds. The Biological Survey finds, however, that some birds are not beneficial and this branch of the United States Department of Agriculture studies the birds in order to be able to inform farmers and legislators as to their comparative merits. As a general rule, the birds that eat largely of insect foods — for example, the wren and the nighthawk — are particularly valuable. On the other hand, the gray grosbeak and the brilliantly colored painted bunting are valuable because they depend for a great part of their food on troublesome weeds, such as the foxtail and pigeon grass seeds.

The barn owl, like other owls, commonly is shot on sight, but ought not to be, for it is one of the most serviceable birds in destroying small rodents, particularly the pocket gophers in the West. For its size, the house wren is one of the most effective bird enemies of the insects. Wrens usually rear two broods of young each year, and the parents keep busy from morning to night bringing food for the hungry young. The wren's diet is almost exclusively animal, and a pair of wrens will account for an enormous number of insects in a season.

The boat-tailed grackle is one of the few birds that do more damage than good. It is fond of corn in all stages, from the first ears to the ripened grain, destroys much rice, and gets few injurious insects, because it gets most of its animal food from the small marine animals along the seashore. *Press service, United States Department of Agriculture*

From picture collection of Visual Instruction Division

Barn or Monkey-faced Owl

With its curious facial disk of feathers it presents a weird appearance. It is one of the most valuable of birds, living as it does, almost exclusively on rats and mice.

Conservation and Democracy

The movement for the conservation of our natural resources, for the protection of our forests and of the wild life of the woods, the mountains and the coasts, is essentially a democratic movement. Democracy, in its essence, means that a few people shall not be allowed for their own selfish gratification, to destroy what ought to belong to the people as a whole. The men who destroy our forests for their own immediate pecuniary benefit, the men who make a lifeless desert of what were once coasts teeming with a wonderfully varied bird life, these, whether rich or poor, and their fellows in destruction of every type, are robbing the whole people, are robbing the citizens of the future of their natural rights. *Theodore Roosevelt*

The University of the State of New York
Bulletin to the Schools

Issued semimonthly during the school year by the State Department of Education

CHARLES F. PROBES, *Editor*

This bulletin is sent without charge to all schools and educational institutions of the State. To others it will be mailed postpaid for 50 cents a year, 5 cents for single copies.

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MARCH 15, 1928

This issue of the Bulletin to the Schools was compiled with the cooperation of the New York State Museum. The Editor desires to express his appreciation to Dr Charles C. Adams, Director of the Museum, and to the contributors of the articles.

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April 13th Is Bird Day

April 13th has been designated as Bird Day.

In extending its greeting to the school children of the State the New York State Museum repeats its cordial invitation for them to visit the Museum in Albany. Thousands of pupils are now making an excursion to Albany a regular school event.

Let Bird Day be a day of joy and delight in the beauty and song of birds as well as a day of appreciation for the help birds give us in protecting our gardens and trees from harmful insects.

It is fitting also that on Bird Day this year we pause to honor the memory of our famous naturalist and artist, Louis Agassiz Fuertes, whose service in depicting in color the beauty of these cheerful denizens of the air was tragically ended in an automobile accident last year. His plates illustrating Eaton's birds of New York published by the State Museum have given information and pleasure to every school in the State. Nearly forty thousand sets of these plates have been distributed.

CHARLES C. ADAMS
Director of the State Museum

What the Bird Does for the State

Birds are of value to the State chiefly through the services they render in (1) eating harmful insects, their eggs and larvae; (2) eating the seeds of noxious weeds; (3) devouring field mice and other small mammals which injure crops; (4) acting as scavengers. The appended outline of the bird's relation to the forester, fruit grower, farmer and citizen will enable us to appreciate its economic importance.

The agriculturist, in producing an artificial condition in the plant world, creates also an unnatural state of affairs among the insects that find a new food in the outcome of his husbandry and among the birds that prey upon these insects. But between birds and forests there exist what may be termed primeval, economic relations. Certain forest trees have their natural insect foes to which they furnish food and shelter; and these insects, in turn, have their natural enemies among the birds to which the trees also give a home. Here, then, we have an undisturbed set of economic relations: (1) the tree; (2) the insect which lives in the tree, preys upon it and may assist in the fertilization of its blossoms; (3) the bird which also finds a home in the tree and, feeding upon insects, prevents their undue increase. Hence, it follows that the existence of each one of these forms of life is dependent upon the existence of the other. Birds are not only essential to the welfare of the tree, but the tree is necessary to the life of the bird. Consequently, there has been established what is termed "a balance of life" wherein there is the most delicate adjustment between the tree, the insect, the bird and the sum total of the conditions, which go to make up their environment. The more trees, the greater the number of insects, and hence an increase not only in food supply for the birds but an increase in the number of nesting sites.

Destroy the trees and the insect finds new food in the crops of the farmer, but the birds, although food is still abundant, lose their home when the tree falls, and lacking the nesting sites and protection from their enemies once found in its spreading branches, they soon perish. *From an article by Frank M. Chapman in the Report of the Forest, Fish and Game Commission, 1903.*

Photograph by G. A. Bailey

The Ring-necked Pheasant

The male bird is strikingly beautiful when in full plumage and bears himself with considerable dignity

The Ring-necked Pheasant

BY GUY A. BAILEY, GENESEO STATE NORMAL SCHOOL

The ring-necked pheasant is now well established in many parts of our State. The first ones were imported from England years ago to take the place of native game birds that were rapidly disappearing from the State. They were given complete protection by law until they became numerous enough to endure a hunting season of short duration. They may be taken legally in the State now only during four days in the fall.

These birds are large and the males particularly are strikingly colored and form one of the attractive features of our rural life. They come freely to the improved highways for the fine gravel that covers the roadbed and we see more of them in proportion to their numbers than we do of woodcock or partridge. For that reason we may go astray in judging their numbers, especially if we assume that all like areas back in the woodlots and hedgerows contain as many.

Coming up the Genesee valley one day recently I counted more than a hundred in small flocks of a half dozen to a dozen picking over the standing weeds. I have seen them in the same patches of weeds before and they will be picking at these dried stems with less and less to feed them for many more weeks. All the food that they get now is from the crop of last year. Some of their food is corn that may be left in the lot or from scattered cobs dropped from the load. Some of it will be found on the land where buckwheat has been shelled out and there may be some loose beans in the

bean lot. Most of their food, however, will be weed seed, dried grapes, dried woodbine berries, elderberries and the like. Over and over this feeding area they go during the late fall months, all the winter months and some of the early spring months. If the birds are numerous the food supply becomes greatly reduced before any more is produced. If no corn or other grain is put out for them they sometimes starve or become so weakened that they fall an easy prey to some enemy. In April or May the females lay their eggs and then the food problem becomes of great importance. The female must spend most of her time incubating the eggs. When she goes to eat she must obtain her supply of food in a short time or the eggs will chill. Besides she must get

Photograph by G. A. Bailey

A setting hen pheasant with her male companion coming to a feeding station. The hen ate hurriedly and rushed back to her nest. The male did not eat.

an abundance of food to keep the eggs warm during the cool days and the cooler nights. Insects will begin to appear but they are not numerous and they are not particularly nourishing. She must have substantial food like the seeds of grain or weeds for this critical period of her life.

Now what does she do if there is a field of planted corn near by? She helps herself to it, of course. Here is a rich supply of the best of food for her own use and for the heat she must give the eggs to raise a good healthy brood of young.

What is to be done? Some persons in some parts of the State are asking permission to shoot the birds that are pulling corn. That is about the worst thing that could be done. It means not only the loss of the hen but the

Photograph by G. A. Bailey

Hen Pheasants Coming to a Feeding Station
Food for pheasants is not always abundant during periods of deep snow. Corn or other grains scattered in open places often attract the birds and serve to carry them safely through these hard times.

brood that may be hatched or is about to be hatched.

What is a better remedy? Put out along the edges of the corn lot a half bushel of soaked corn. When that is gone put out another.

In a short time the corn will be up far enough to be safe, a horde of insects will be coming on and you have saved a mother hen and 14 or 15 insect catchers that will be worth more than the cost of the corn. Then when the grasshoppers come you will have a group of hungry pheasants eating their weight in grasshoppers each day.

The crows, grackles and red-winged blackbirds will get some of the corn too, but feed them, for they will all be eating insects in a short time. We should make an early alliance with all forms of bird life that eat harmful insects.

Veery, Panting

Long Island South Shore Bird Notes

BY J. T. NICHOLS, AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK CITY

With limited space to tell something of the bird life of New York State, an ornithologist is embarrassed as to what items he should select for comment. The land birds of the entire State, for that matter of the entire eastern half of the United States, are very much alike. The sea birds occur mostly as birds of passage or gather in winter along similar coasts over a wide area. One might write pages and mention nothing that was not in a general way also applicable elsewhere. It is the object here to present a picture of the south shore of Long island environment, then to mention a few items of bird life of a more or less distinctly local nature. Finally it is hoped that some bearing may be found on general problems which also pertain elsewhere.

The area to be considered is a rather uniform one, bordered on the south by the two parts of Great South bay. Great South bay proper, the "south" or "west" bay, is a body of shallow salt water with broad expanses of tidal marsh and mud flat. It opens eastward through the "narrow bay" into Moriches bay, also known as the "east bay." The East bay is decidedly brackish. Its channels are salt, but the creeks which enter it on the landward side are fresh, and the water on the shallows along its outer edge is sufficiently fresh for its vegetation to be of the pondweed type. East bay marshes, on the other hand, differ little from the salt marsh found elsewhere in this latitude, except that they are not intersected with tidal creeks. The East bay is almost tideless, though subject to frequent fluctuations in water level due primarily to the wind. Both bays are separated from the ocean by a stretch of unbroken sand beach with characteristic rolling dunes, beach grass, bayberry bushes etc.

Inland this south shore area is almost perfectly flat, occupied by monotonous woodland, mostly pitch pine and scrub oak. In places the pines come down to the edge of the bay, but in general between pines and bay there is a strip of larger hardwoods, mixed oak and hickory, with red maples and sometimes large pepperidges along the creeks. Near the water the land has been largely cleared; there are open fields between stands of trees, farms and villages to the east, suburban development to the west.

From picture collection of Visual Instruction Division

Red-tailed Hawk

This is one of the birds frequently called "henhawk"; but it seldom attacks domestic fowls, its diet consisting largely of mice and other rodents.

The large resident hawk of the south shore of Long island is the red-tailed; the red-shouldered is practically unknown even in migration. Some remarks on the voice of this first mentioned bird may not be out of place. Besides the long grating squeal with which it takes wing, in summer a more or less continuous "krree! — krree! — krree! — krree!," characteristic when in flight, corresponds more closely to the cry of the red-shouldered hawk. This is the note of birds of the year; whether or not it is also used by the adult is uncertain. Here the blue jay, which is abundant, sometimes imitates the red-tailed hawk, but does not imitate the red-shouldered, so favorite a habit in country where the latter species is common that one might fancy the

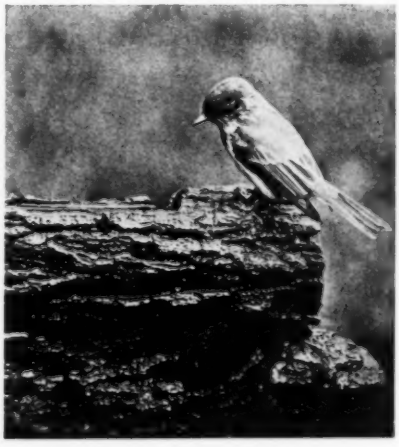
case one of coincidence rather than imitation. The blue jay, by the way, is essentially a woodland bird on Long island and has not adapted itself to villages and suburbs as in New England and northern New Jersey. It comes about houses and farmyards when adjacent to woods, however, and likes to conceal its nest close to human habitation.

The great-horned owl is a rather common resident and the barred owl is unknown. These big owls commence their sepulchral hooting, "toot toodle-toot, toot, toot" in late summer and early fall and are apt to be very noisy about Christmas time. One spring a pair had a nest in a stand of large trees separated by open fields from any continuous woodland. The young could look out over the waters of a creek widening toward the bay, and themselves made a noticeable whitish mark at some distance. When the parents left the immediate vicinity of the nest these at once became the butt for a mob of noisy crows, but, strangely enough, neither young nor adults were molested in their home territory.

The hairy woodpecker is a common woodland bird. At dawn on clear still crisp mornings in late winter or early spring one hears it drumming in different directions in the woods, and gets the impression that it is more numerous than the smaller downy woodpecker, though in general one sees more of the latter species. Although sometimes one hears what might be either, the drumming of the two is recognizably different, that of the hairy more hurried, incisive and higher pitched.

Perhaps the most notable bird in this woodland is the hermit thrush, here at the extreme southern limit of its breeding range for sea level. It occurs very sporadically, sometimes not far from the south shore, sometimes well back in the pines, the most flourishing colony we know of at present being well over toward the northern edge of the pines, not far from the dissimilar north shore section of the island. Where there is but a single pair, the hermit sings comparatively little. Perhaps one may chance to hear its silvery notes drifting through the woods but once or twice in a summer. Where there are several pairs it sings much more freely, answering back and forth. The writer is therefore uncertain whether it still nests at his home near the East bay. It certainly does so in much smaller numbers than 15 or 20 years ago. Meanwhile the wood thrush has steadily increased in numbers and is now a common bird. The wood thrush came in around the clearings and human habitation, not occupying an identical niche with the hermit thrush, but there were times when one could stand and listen to both species singing from two different directions. Strangely enough, so far as we know the Wilson's thrush has never bred in our area, being present as a transient only, in rather small numbers.

Were there space, there would be much to say of the water birds which appear as transients and winter residents; of the south bound shore birds which still follow a narrow migration lane along the outer edge of the bay in considerable number and variety; of the marsh dwellers and their fluctuation in numbers — such as the long-billed marsh wren, which disappeared from a mainland cat-tail station after a period of years and gradually returned to it, seemingly from the outer beach where it nests in high-tide bushes, by way of the open salt marsh where nests were found in the short marsh grass. As it is, attention is merely called to the case of wood and hermit thrush as perhaps representing a general tendency of birds with southern affinities to replace other species. As far back as the writer can remember the white-eyed vireo has been present near his home, but the blue-winged warbler has only recently become a fairly common breeder, and his first summering yellow-breasted chat is still more recent.



Wood Pewee

How To Attract Birds about Our Schools

BY M. P. SKINNER, FIELD NATURALIST, JAMESTOWN, N. Y.

One of the never-failing surprises that Mother Nature gives us, is that no matter how much we neglect and abuse wild birds, they are always ready to forget, and to make friends with us if we will let them. If we encourage them they usually respond by coming about our homes and schools.

If we are going to invite the birds to visit our school, we must first make it safe for them to do so. We must have no lurking places for cats to hide, for every domestic cat is a potential bird-killer.

Some dogs, although they are seldom as relentless as cats, and can not climb, are injurious to ground-nesting birds. Therefore, if you would have plenty of birds you must restrain dogs as well as cats. Schools in towns and cities are often visited by hordes of English sparrows; and these foreign birds are a distinct menace to native birds, chiefly because they are bold and pugnacious and occupy all the favorite nesting sites or monopolize the food supplies.

Not only should the native birds be protected from active enemies, but they should be sheltered from cold winds and storms. The best shelter is that afforded by thick trees and shrubbery, especially the dense, evergreen varieties. Birds are well able to resist most cold spells, but continued exposure weakens them, especially if they are already weak or sick. No trees or shrubbery on the school grounds would be a handicap in attracting birds, but some shelter can be provided for the cold and storm-beaten birds by heavy cornices or eaves, under which they may snuggle, or outbuildings with open windows, or by affording free access to rafters under porches or in attics and cupolas.

Having provided safe places for our feathered guests, we should next offer them something to eat, especially if it is wintertime with snow on the ground, for the birds then find it hard to get any natural food. The simplest of all feeding methods is to hang below a branch or porch rafter, a bone, either cooked or not, but still having bits of marrow, gristle or meat clinging to it. Such bones are very attractive to chickadees and nuthatches and even at times to the smaller woodpeckers. Next in favor are pieces of beef suet tied flat to a limb or bound with many wrappings of string to an upright tree trunk. A little neater way is to fasten a cup made of wire netting to the tree trunk with the suet inside, or between the trunk and the netting. Wire netting has the disadvantage, however, that in very cold weather it may freeze fast to the eyeballs of the feeding birds and so cause great suffering. To obviate this, the netting may be made of strings, like a fish-net.

Suet is a more or less acceptable food to insect-eating birds, but other birds do not care for it. To attract these, crumbled crackers, dry bread or doughnuts, small grains, chick-feed, cracked corn, coarse corn meal, coarse grits, uncooked rolled oats, dried sunflower seeds, hay mow sweepings or wild seeds should be scattered on a ground free from fallen leaves or brush. Since such a place is often too much exposed to cats, dogs and red squirrels, this food may be scattered on a small tray or pan fastened to a porch railing or to the top of a post, placed in a safe place. If this post be placed well out from trees and bushes, and the top made five feet or more above the ground, it will be safe from dogs. To make it safe from cats and squirrels, the pole may be sheathed for two feet or more with tin or sheet iron at, or near, the top.

Another method of feeding birds is to mix chopped nuts, seeds and crumbs in melted fat or suet. Then, as the mixture hardens, pour it over branches or boards, and expose it for the birds. Naturally a valuable, living tree should not be treated this way, for the hot mixture would probably kill it. If this food mixture be poured into a shallow tray or an old pan, the resulting "food cake" may be exposed in an inclined position or under a shelter where it would be free of snow.

A more natural way of feeding is to grow plants, shrubs and trees that bear attractive seeds or fruits. The cultivated varieties best suited to this purpose are: honeysuckles, elders, dogwoods, mulberries, currants, viburnums, cherries, hawthorns, barberries, cedars and birches. The best of the wild varieties that birds like are: cedars, junipers, wild cherries, blackberries, huckleberries, staghorn sumach, dogwoods, bayberries, alders and birches. Before making a selection it would be well to

consult a neighboring florist to make sure of suitable and hardy varieties.

Although it is not so important as food, clean drinking water is appreciated by most birds even during the winter.

Feeding stations are more or less a winter activity, but birds will use them to some extent at all times, especially during the nesting season. Then they appreciate an abundant supply of ready and easily accessible food. The approach of spring brings nest boxes and nesting sites into prominence as means of attracting birds. Many birds naturally nest in hollow trees and decaying limbs, but the cutting of the forests and the removal of dead and dying trees has deprived birds of most of the natural facilities, thereby giving us a chance to offer substitutes.

Birds are not very particular about their nest boxes, if we will only meet their wishes in a few particulars. With the exception of the purple martins, birds do not like multiple-room houses. The martins, however, prefer to live in colonies, there apparently being no limit to the number of rooms that may be built into a successful martin house. If there are too many rooms for the colony, the surplus rooms may be occupied by the pestiferous English sparrows. In building houses for other birds, shapes and sizes do not matter so much as the size and position of the entrance. This opening should be round and just large enough for the intended occupants to enter. It should be placed high in the box so that there is ample space below it for the voluminous nesting material. There should be no perch on the outside of, or near, the entrance. The birds do not need it, and it only helps enemies, such as red squirrels, snakes and cats, to rest there and get at the nest inside. For martins the entrances may be made close to the floor of the nesting box and a rail or a miniature porch placed outside. Martin houses are protected from enemies by being placed on top of a pole at least 20 feet high and a similar distance from the nearest trees or other objects. As a further safeguard, the pole may be sheathed with tin.

I do not believe birds care whether their nest boxes are rough or smooth, or whether they are painted or not on the outside. But I think they like to have the inside left rather rough so that they, and especially their youngsters, can climb up and down easily. Wood is not the only acceptable material, for bird boxes may be made of tin, sheet iron, roofing paper or earthenware. They do not need to be specially made, for I have seen small wooden boxes, mail boxes, tin cans, watering pots, coffee pots, old hats and even the pockets of old, discarded clothes utilized to hold nests. In some places it is quite usual to hang up dried gourds for the birds, especially martins, to occupy.

Photograph by G. A. Bailey

The American Eagle

Have you ever seen an American eagle coming to her nest? You should be looking for the nest this year or you may be too late. There are not many left in the State and the number is growing less. In a few years we may have none. Try to find a nest and have the image of the "King of Birds" impressed on your memory.

It is important to place the nest boxes just right to have them occupied. In fact, the location is more important than either the size, shape or material of the bird box. Martin houses should be placed in the open in the direct sunlight. To prevent their becoming too hot, they should be well ventilated. All other bird houses should have some shelter during the hottest parts of the day, and metal or earthenware houses should have cool shade all the time. The entrance should be turned away from the prevailing storms and winds, and it is well to have the roof of the little home project so as to protect the entrance from rain.

In addition to bird boxes, we can place shelves under porch roofs or under eaves for the use of robins and phoebes. We can let a window remain open so that barn swallows can fly in to nest on the rafters. We can let eave swallows build their retort nests under the eaves. We can allow the chimney swifts to have a brick or clay chimney to occupy. And we can make an artificial sand or gravel bank for the bank swallows.

We can even help those birds that insist upon building their nests in bushes and trees by providing plenty of the right kind of forks and crotches to support their nests.

Not only can we attract nesting birds by furnishing secure places to nest, but we can also provide nesting materials in abundance. String of various kinds and sizes, cotton batting, old but clean rags, horsehair and even bits of paper are all acceptable. And we should not forget to give the robins and eave swallows a good, wet puddle of mud in dry weather.

Birds enjoy baths at all times, but particularly in summer when the weather is hot and all other supplies of water may be dried up. Indeed, in many ways, a good bird bath will attract more birds in summer than anything else we can give them. It should have at least two or three square feet of water not over one inch deep, but always fresh and clean and frequently changed or replenished. The bottom of the bath should be rough so that the birds will not slip. If you have nothing but a pan or other slippery bath, put some sand or clean gravel in it, cover with an inch of water, and watch the fun. You will enjoy the sight as much as the birds will enjoy the bathing.

Trans-Atlantic Flights

Long-distance flights of birds are common. Many species that spend their summers in the United States and Canada fly almost the length of the Western Hemisphere and spend the northern winter in the summer of Argentina and Chile. Long-distance flights over water may be less common, but the Biological Survey of the United State Department of Agriculture has conclusive evidence that some birds do fly across the Atlantic. This evidence is the result of bird-banding activities that have proved so useful in the study of the flight and habits of birds.

Two black-headed gulls banded at Rossiten, Germany, were recaptured, one at Bridgetown, Barbadoes, in the British West Indies, and the other on the mainland of Mexico, near Vera Cruz. Two kittiwakes, banded at the Farne islands, Northumberland, England, were recovered almost directly across the Atlantic at points on the coasts of Labrador and Newfoundland. A common tern, banded at Eastern Egg Rock, Me., crossed both the Atlantic ocean and the Equator and was recovered from the delta of the Niger river, British West Africa. A young Arctic tern, banded in Labrador, was recently found dead near La Rochelle, on the coast of France. *Press service, United States Department of Agriculture*

Yellow-billed Cuckoo with Caterpillar

How Trees Protect the Birds

Trees protect birds by furnishing them nesting places and sheltering them from sun, wind and storm. The trees offer food to the birds in the shape of buds, fruit and seeds, and in the form of insects that live upon the trees. In the trees birds find safety from all their enemies that can not climb or fly, and the foliage of the trees often hides them from all enemies. The knotholes in a hollow tree offer the birds a chance to conceal their nests in the heart of the tree, and the entrance hole is often so small that most of the larger enemies of birds can not get in. Large leaves overhanging a nest or a roosting bird act like an umbrella and shed the rain, keeping the sleeping bird dry or sheltering the tender young in the nest. In the cold of winter evergreen thickets keep out the piercing wind, so that the birds roosting there may sleep warm and dry, and the dense foliage of summer shuts out the sun and cools the air so that the young birds on the nests may not be parched and die, as they might if unprotected from the blazing sun. The trees furnish twigs, leaves and strips of bark for nest building. Indeed, they seem made especially for the convenience and protection of the birds.

How Birds Protect the Trees

When you go out into the woods do you notice what the birds are doing? It is interesting and important to know what birds do in the world — whether from our standpoint they do good or harm.

Many years ago a boy watched a vireo singing in a sunny thicket. The bird sang nearly all the time, but now and then it stopped, and the boy saw that when its singing ceased it found, killed and swallowed a caterpillar. Then, for the first time, he realized that birds destroyed the enemies of the trees.

In the winter of 1894–95 this boy, then grown to manhood, experimented in attracting birds to an orchard. He tied beef bones and suet on the limbs, and this brought chickadees, woodpeckers and nuthatches, which fed on shreds of meat left on the bones, and on suet and marrow. The birds stayed about the orchard all winter. They ate the eggs of the fall cankerworm moths which cling to the twigs. They ate the moths of the spring cankerworm when they crawled up the tree to lay their eggs, and they ate the eggs of the tent caterpillar and those of other insects, which if allowed to hatch would have produced worms that eat up the leaves of the trees and so destroy the fruit.

When spring came nesting boxes and bird houses were put up to call the summer birds to the orchard. The result of attracting the birds was that this was the only orchard in that region that produced any fruit. It had a good crop of apples, while tent caterpillars, cankerworms, gypsy moths and other insects so stripped the trees elsewhere in the town that they bore no fruit.

We know that the birds destroyed the insects and insects' eggs upon the trees, for they were seen to do it, and by watching them carefully we concluded that during the 25 days in which cankerworm moths crawled up the trees to lay their eggs a single chickadee destroyed more than 38,000 of these eggs. It is worth while to learn how insects kill trees and how birds can protect the trees against these destroyers. *From Massachusetts Department of Agriculture, Arbor and Bird Day Bulletin 1920.*

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